

EXHIBIT 127

PUBLIC

**IN THE UNITED STATES DISTRICT COURT
FOR THE EASTERN DISTRICT OF VIRGINIA
Alexandria Division**

United States of America, *et al.*,

Plaintiffs,

v.

Google LLC,

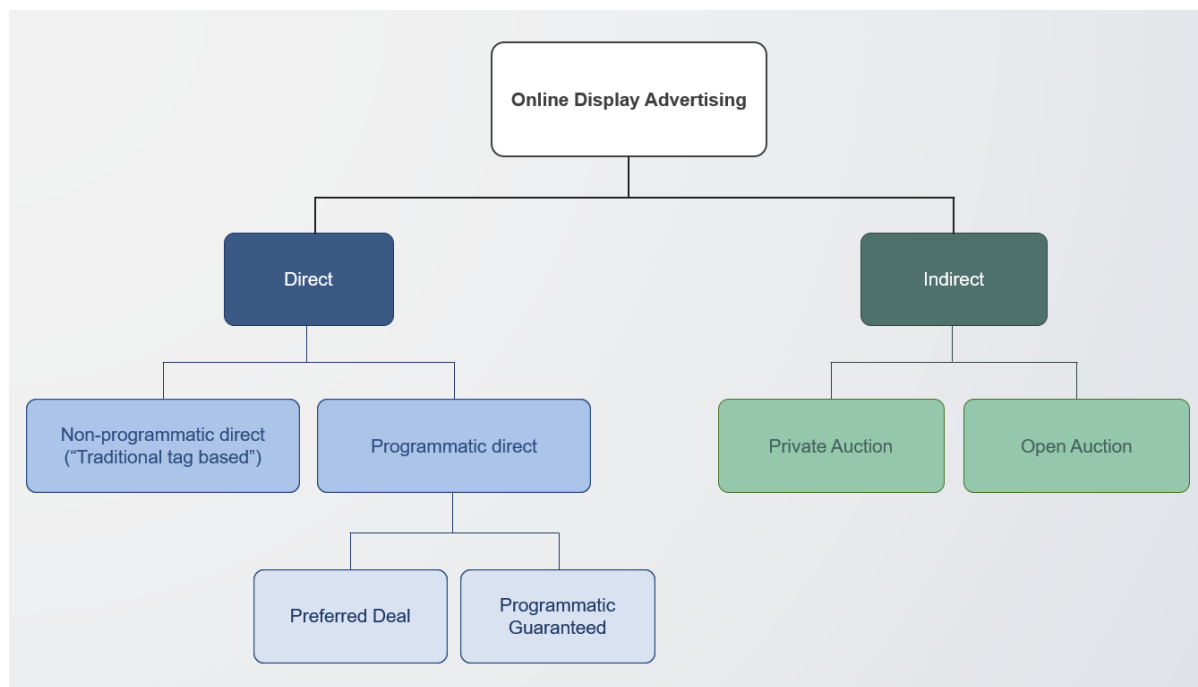
Defendant.

Case No. 1:23-cv-00108-LMB-JFA

Hon. Leonie H. M. Brinkema

EXPERT REPORT OF ROBIN S. LEE, PHD

December 22, 2023

Figure 14. Transaction types for online display advertising used by Google

Source: Chart created using information from GOOG-DOJ-AT-02199478, at -525-27 (06/2019); GOOG-DOJ-03242646, at -670 (09/26/2018); “Get started with Programmatic Direct,” Google Ad Manager Help, accessed December 18, 2023, <https://support.google.com/admanager/answer/6239618>; Google, “Ways of transacting in Ad Manager”, Google Ad Manager Help, accessed December 18, 2023, <https://support.google.com/admanager/answer/9248464>.

II.A.4.a. Direct transactions

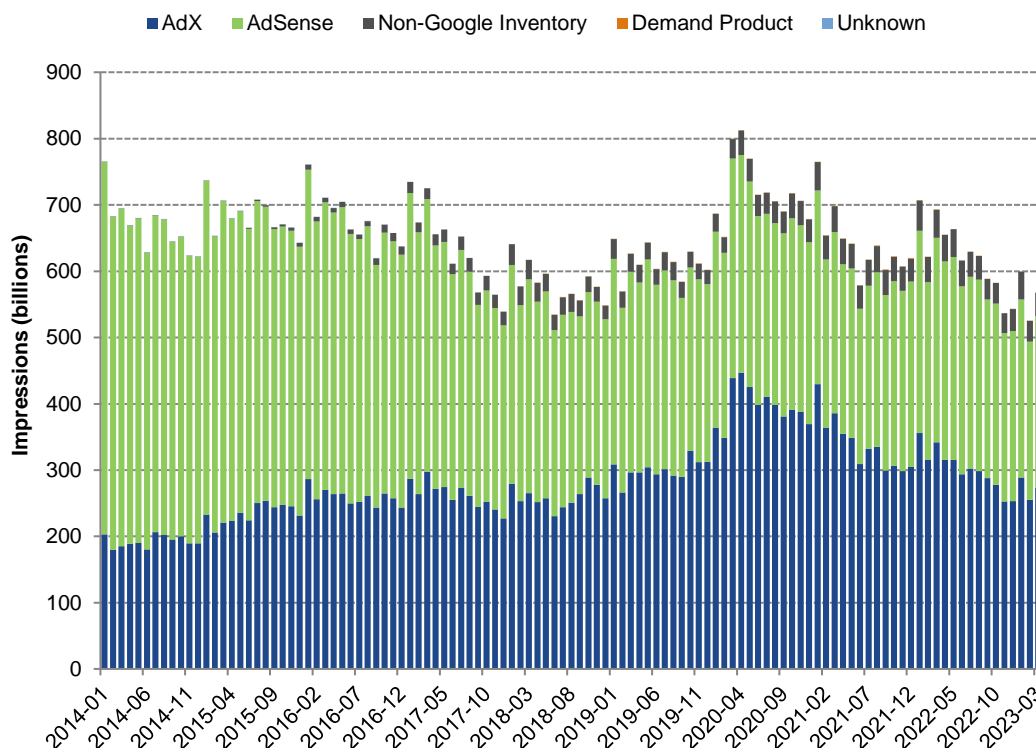
- (68) As stated above, in direct deals, inventory is transacted via terms arising from one-on-one negotiations between a publisher and an advertiser and can be facilitated either manually (“non-programmatically”) or programmatically through ad tech products.
- (69) In **non-programmatic direct** negotiations, the publisher and advertiser negotiate and agree on the terms of the deal, the advertisement is then sent to the publisher (e.g., via email), the publisher manually uploads the advertisement to its publisher ad server (the platform that hosts the publisher’s ad inventory), and the publisher ad server serves the advertisement on the publisher’s website.⁴⁹ Billing, payments, and reconciliation are handled manually by the publisher and advertiser.
- (70) Whereas non-programmatic direct deals primarily involve manual negotiation and deal execution, programmatic direct automates many aspects of this process, allowing publishers to “negotiate direct-sold campaigns while taking advantage of programmatic technology.”⁵⁰ With programmatic direct,

⁴⁹ Maciej Zawadziński, “Understanding RTB, Programmatic Direct and Private Marketplace,” Clearcode, April 13, 2018, <https://clearcode.cc/blog/rtb-programmatic-direct-pmp/>. See also GOOG-DOJ-AT-02199478, at -527 (06/2019).

⁵⁰ Google, “Ways of transacting in Ad Manager,” Google Ad Manager Help, accessed December 18, 2023,

- (125) Google Ads, with some limited exceptions (see Section VII.B.3), restricts its purchase of publisher display inventory to AdX and the publisher-facing component of its ad network, AdSense (which I describe next). As shown in Figure 23, between January 2014 and March 2023, Google Ads purchased 97% of its display ad impressions through AdX or AdSense.

Figure 23. Inventory source for Google Ads, worldwide (Jan 2014–Mar 2023)



Source: Google Ads data (DOJ RFP 54).

Notes: Limited to worldwide open-web display impressions purchased through indirect transactions. Excludes impressions on Google properties. Demand Product is defined in Appendix K.3.

II.C.3.b. AdSense

- (126) AdSense is the web publisher-facing component of Google’s display ad network,¹⁵¹ launched in June 2003.¹⁵² AdSense provides open-web publishers with the option to sell display advertising to

¹⁵¹ Google, “Compare Ad Manager, AdSense, and AdMob,” Google AdSense Help, accessed December 18, 2023, https://support.google.com/adsense/answer/9234653?hl=en&ref_topic=1319753. Google distinguishes between AdSense for Content (“AFC”) and AdSense for Search (“AFS”). AFC is “a self-service platform for Web publishers that do not have direct sales to monetize their content. AFC focuses on automation and offers limited controls to publishers.” GOOG-DOJ-04004392, at -393 (09/10/2018). AFS allows publishers to monetize search results by serving ads within the publisher’s own search features. When I refer to AdSense, I focus on AdSense for content as the relevant display product for this report. See Google, “AdSense for Search (AFS),” Google AdSense Help, accessed December 18, 2023, <https://support.google.com/adsense/answer/9879?hl=en>.

¹⁵² GOOG-AT-MDL-006217592, at -608 (10/31/2022).

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advertisers without using a publisher ad server. Advertisers can purchase publisher display inventory available on AdSense by using Google Ads.¹⁵³

- (127) There are two primary differences between AdSense and Google's publisher ad server, DFP. First, AdSense provides a more automated experience for the publisher, which Google describes as appropriate for small, less sophisticated publishers.¹⁵⁴ For example, publishers can opt in for an automated ad experience through AdSense's Auto ads feature, which chooses ad placement.¹⁵⁵ In contrast, DFP offers extensive controls and is designed for publishers seeking to manage multiple inventory and deal types.¹⁵⁶
- (128) Second, unlike DFP, AdSense does not incorporate direct deals,¹⁵⁷ instead selling ad inventory through open auction transactions.¹⁵⁸ A 2018 Google document describes AdSense as "a self-service platform for Web publishers that do not have direct sales to monetize their content."¹⁵⁹

¹⁵³ GOOG-DOJ-04601261, at -261 (08/13/2019) (According to a 2018 Google chart, "AdSense publisher may opt-in to AdX." See Figure 19.). GOOG-DOJ-04004392, at -393 (09/10/2018) (According to a September 2018 Google document, "About ~84% of the demand for AdSense come from AdWords; the rest is ~10% DBM and ~6% AdX buyers.").

¹⁵⁴ Deposition of Tim Craycroft (Google), August 15, 2023. 162:24–163:4 ("Q. What is AdSense? A. It's a web display, web ad network for less sophisticated publishers. So it's for tens of thousands, if not hundreds of thousands of publishers. More turnkey. They don't have direct sales forces. They rely entirely on indirect demand."). Deposition of Eisar Lipkovitz (Google), March 31, 2021, 80:14–81:14 ("Q. Okay. That's helpful. So we talked a little bit about DFT [sic] and AdX. Can you help me understand how AdSense fits into these categories? A. Yeah, so AdSense originated much earlier. It was geared toward those cooking blogs, right, and it was a self service, super simple to use, you don't need to do anything, right. So it's sort of a more long-tail product that you just put a tag, you put some policies around it, because you may have some sensitivity on some ad and you just make money. Sort of a great product. And, you know, I thought it really helped grow the web in a tremendous way in, you know, early 2000s. Q. Okay. You used the word "long-tail" there. Could you help define that for me? A. Yeah, I mean, so, you know, you used cooking blogs as an example. I think it's the -- it's a site that does not have a lot of impressions, that is run by very small number of people, right, maybe one person, that are not technically proficient, right."). See also GOOG-DOJ-13218256, at -256 (10/11/2018) ("AdSense: Scalable, automated solution for small, web-based publishers without 3p demand or direct sales"); GOOG-DOJ-04004392, at -393, -397 (09/10/2018) ("AdSense is a self-service platform for Web publishers that do not have direct sales to monetize their content" and "AdSense for Content is the industry leading platform for torso/tail web publishers"); "Compare Ad Manager, AdSense, and AdMob," Google Ad Manager Help, accessed December 18, 2023, <https://support.google.com/admanager/answer/9234653?sjid=12897690964529549526-NA> ("Google Ad Manager, AdSense, and AdMob are powerful products that help you sell ads on your site or app. Each provides different features suited to different kinds of publishers. AdSense is best for publishers who want more automation for their ad solutions, and have a small dedicated ad management team.").

¹⁵⁵ Google, "Set up ads on your site," Google AdSense Help, accessed December 18, 2023, https://support.google.com/adsense/answer/7037624?hl=en&ref_topic=1250102.

¹⁵⁶ Google, "Compare Ad Manager, AdSense, and AdMob, Google AdSense Help, accessed December 18, 2023, https://support.google.com/adsense/answer/9234653?hl=en&ref_topic=1319753.

¹⁵⁷ GOOG-DOJ-13218256, at -256 (10/11/2018) ("Sell-side Segmentation Strategy Paper" "Google currently offers 5 publisher products...AdSense: Scalable, automated solution for small, web-based publishers without 3p demand or direct sales").

¹⁵⁸ Google, "How AdSense Works," Google AdSense Help, accessed December 18, 2023, https://support.google.com/adsense/answer/6242051?hl=en&ref_topic=1319753 ("AdSense uses an ad auction to automatically select the ads that will appear on your pages").

¹⁵⁹ See GOOG-DOJ-04004392, at -393–97.

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- (187) The extent to which advertisers and publishers multihome varies both across advertisers and publishers, and across ad tech products. Whether a publisher or advertiser ultimately chooses to multihome depends not only on the benefits from doing so, but also on “multihoming costs” incurred when using multiple products.
- (188) For example, although certain smaller advertisers may choose to only use a single advertiser ad network, advertisers with more complex advertising needs may use multiple advertiser ad networks and DSPs.²⁴⁴ A benefit of using multiple DSPs for advertisers is accessing a wider range of display inventory and broader audience of consumers, and documents indicate that multihoming costs for advertisers for DSPs are low.²⁴⁵
- (189) Alternatively, when multihoming costs are high or it is impractical to use multiple products, customers will tend to use a single product for a given function (“singlehome”). This is the case for publisher ad servers, where publishers tend to use one publisher ad server for their web display inventory,²⁴⁶ even though they will often elect to sell impressions through multiple ad exchanges,

Sellside” lists reasons publishers use multiple SSPs including: “1. Increase revenue... 2. Pockets of incremental demand. New advertiser demand... Incremental value from enriched data signals on the client side (HB calls always have more data than what we send via AdX).”)

²⁴⁴ GOOG-TEX-00111014, at -031 (02/08/2016) (A Google document from Q1 2017 noted that advertisers use “[m]ultiple DSPs used per campaign”); *see also* GOOG-DOJ-AT-02524665, at -670 (2021) (smaller buyers (<\$25MM) plan to use 4.1 DSPs in 2022 where as larger buyers (\$25MM+) plan to use 7.7 DSPs in 2022. Small advertisers tend to buy on ad networks and not on DSPs); Deposition of Eisar Lipkovitz (Google), March 31, 2021, 317:9–23 (“Q. [...] And I know that we keep going over this point, but is there a group of advertisers that only buys on GDN? A. And don’t buy where else? I mean, that’s a very broad question. Q. On other DSPs. A. I believe there is a large category of usually small advertisers don’t [sic] buy on DSPs.”)

In Section IV.E.1.a, I provide evidence that a large number of advertisers comprising a meaningful amount of spending on Google Ads in aggregate do not also use DV360, and spend less on average than advertisers who also use DV360. This is consistent with Google Ads being used by smaller advertisers who do not also use DSPs.

²⁴⁵ *See, e.g.*, GOOG-DOJ-29478169, at -172 (07/10/2014) (2014 GDN Inventory Strategy deck notes, “[s]ignificant advertiser benefit to multihoming and cost is low: ‘Walled gardens’ (e.g. Facebook) will always exist forcing advertisers to multihome, Advertiser multihoming cost is kept low by DSPs, agencies and other media buyers.”); GOOG-DOJ-10658848, at -848–49 (07/20/2018) (2018 email correspondence about GOOG-DOJ-05241386 (07/30/2019) an Apps Strategy Summit document. “Advertisers often want as wide a reach as possible...I would also add the following: 70% to 80% of DBM’s spend comes from agencies. Switching costs are very low between DSPs. ...Unlike ad servers which are very sticky, our largest agencies generally use many different DSPs at once (even for the same campaign) and consider budgets as very fungible across those platforms. This is mainly because all the measurement is done by ad servers and 3P providers (like Nielsen and MOAT). Plus, usually there’s not a lot of deep engineering integration between the agency and the DSP. As a result, there’s not much performance history or engineering work you lose when you switch platforms. In other words, the relationship between agencies and DSPs ends up being more transactional (like an airline ticket) rather than long run (like an ad server). This also helps them justify their existence by adding complexity to the ad buying process.”).

²⁴⁶ Deposition of Andrew Casale (Index Exchange), September 26, 2023, 112:12–25 (“Q. How common is it for a publisher to utilize more than one publisher ad server? A. Common across channel, so a publisher might opt to use an ad server for web display and a different ad server for video. I don’t think publishers ever use two ad servers for one channel, so I don’t think publishers would ever use two ad servers for web display.”). *See also* MSFT-LIT-0000046646, at -652 (10/10/2017) (Confidential Response of AppNexus Inc. to Public Consultation Paper on the Functioning of Competition in Internet Advertising) (“It is exceedingly rare for a publisher to use more than one ad server simultaneously other than where format specific ad servers are needed such as for mobile and video... Using more than one ad server may be technically feasible (particularly for different ad formats), but it would be highly inefficient,” listing reasons including multiple servers not having a complete view of all inventory, not being able to create unified reports, having difficulty with managing advertiser budgets, reducing advertiser competition, and increasing page processing time.); GOOG-DOJ-

- (341) Next, I discuss potential alternatives to ad exchanges for both publishers and advertisers.
- (342) First, in theory, publishers and advertisers could attempt to substitute away from ad exchanges by increasing their reliance on direct deals. However, as I discussed in Section IV.B.4, publishers are likely limited in their ability to forgo indirect and RTB transactions in favor of direct transactions. Moreover, the widespread adoption of ad exchanges by publishers and advertisers to transact indirect display inventory is consistent with ad exchanges serving a need unfulfilled by direct transaction types.^{492,493}
- (343) Second, for publishers, publisher ad servers are not close substitutes for ad exchanges. The services provided by publisher ad servers are largely complementary to those provided by ad exchanges. Ad exchanges connect with and run real-time auctions among DSPs and other demand partners, and then typically submit the winning bid for consideration by a publisher's publisher ad server against other real-time bids or direct deals.⁴⁹⁴ Without ad exchanges, publisher ad servers have limited access to real-time sources of advertising demand, bidding that is very valuable to publishers.^{495, 496}
- (344) Third, for advertisers, DSPs are not close substitutes for ad exchanges. DSPs provide programmatic ad purchasing services and bidding optimization services for advertisers and ad agencies, and

display? A. Because of the nature of programmatic ad technology, there are -- there can be many more buyers that -- in an automated way that can have access to any individual display impression including those that Vox Media owns and sells.”).

⁴⁹² “Initially, publishers sold space to advertisers via direct sales by finding advertisers willing to display their ads on their websites...Direct sales brought about the problem of fill risk; because some inventory could end up unsold, there was a need for an intermediary, a technological platform that would efficiently sell remnant inventory and automate the process. That’s where the ad network came in... When real-time bidding (RTB) was introduced in the late 2000s, network optimizers [that worked with ad networks] morphed into a new type of AdTech platform, which we know today as supply-side platforms (SSPs).” Michal Wlosik and Maciej Zawadzinski, “What is a Supply-Side Platform (SSP) and How Does It Work?,” Clearcode, October 18, 2018, <https://clearcode.cc/blog/what-is-supply-side-platform/>. See Section II.D.4 for more information.

⁴⁹³ There is some evidence that advertising customers would not substitute away meaningfully from ad exchanges in the event of a meaningful price increase on open auction transactions through exchanges. See Deposition of Susan Schiekofer (GroupM), September 26, 2023, 105:21–106:8 (“Q. Okay. If an exchange increases its display open auction take rates from 20 percent to 21 percent, would GroupM be more likely to try to shift impressions to another exchange, or to another type of advertising like insertion order-based display ads or social? A. Unlikely to make big changes based on that unless there was some drop-off in performance.”). Note that the GroupM deposition discusses substitution at AdX’s prevailing prices (20%) that are higher than competitive levels. Evidence that customers would be unlikely to substitute to other types of transactions given a price increase relative to prevailing supracompetitive prices is stronger evidence than needed to satisfy a hypothetical monopolist test.

⁴⁹⁴ As I discussed in Section II.E, this submission may occur either directly or indirectly through header bidding.

⁴⁹⁵ See Section IV.B.4.

⁴⁹⁶ Similarly, header-bidding wrappers are not substitutes for ad exchanges, primarily since they rely upon ad exchanges to access advertiser spending and other demand sources. See, e.g., Deposition of Tim Craycoft (Google, formerly Amazon), August 15, 2023, 63:3–63:11 (In discussing Amazon’s server-side header-bidding product, TAM: “Q. Did you have an opinion as to whether TAM was a threat to AdX? A. I did not see it as competing with AdX. Saw it as providing supplemental demand. There are five or six exchanges out there, and we didn’t see it as a threat to all of them. We saw a way to make them all work better together.”).

V.B. Google possesses substantial and sustained market power in the publisher ad server market

(428) Google’s publisher ad server, DFP, is by far the most popular publisher ad server used by open-web publishers. Google faces limited competition with other publisher ad servers, and that competition has become even more limited in recent years, as alternatives to DFP have exited the market.⁶⁰⁸

(429) In this section,

- I first describe key sources of Google’s market power in the publisher ad server market (Section V.B.1). These include DFP’s unique access to real-time bids from AdX and Google Ads demand, its unparalleled access to open-web publisher inventory alongside high publisher switching costs, and access to valuable data through its various consumer-facing products.
- I next present measures of DFP’s market share and discuss barriers to entry and expansion in the publisher ad server market (Section V.B.2). I show that across a variety of sources, including from Google documents from as early as 2013 and analysis of the data produced in this matter, DFP’s market share is very high (90% or higher in recent years among worldwide open-web display impressions for a set of publisher ad servers that produced data). I explain how DFP’s market power is also protected by significant barriers to entry, including costs of building and maintaining a publisher ad server, publisher switching costs, indirect network effects, and Google’s conduct in this matter.
- Last, I provide direct evidence of DFP’s market power (Section V.B.3). This includes DFP’s ability to maintain quality-adjusted prices above competitive levels (noting that Google recoups some of its profit from DFP’s market power on its other supracompetitively priced products in the ad tech stack). Protected by significant barriers to entry, DFP also possesses the ability to degrade the quality of DFP in ways that advantage AdX without losing significant sales.

(430) For these reasons, I conclude that DFP has substantial market power in the publisher ad server market, and has likely had such market power since at least 2015.

V.B.1. Sources of Google’s market power in the publisher ad server market

(431) Google’s market power in the publisher ad server market derives from three primary sources.

⁶⁰⁸ Facebook terminated the ad-serving capabilities of its Atlas platform in 2016. *See* Lara O’Reilly, “Facebook is killing off its Atlas ad server (but keeping the rest of it),” *Business Insider*, November 18, 2016, <https://www.businessinsider.com/facebook-winds-down-atlas-ad-server-2016-11>. OpenX shut down its ad server in the summer of 2019. *See* Chris Shuptrine, “OpenX Ad Server Alternatives,” *Kevel*, December 19, 2018, <https://adzerk.com/blog/openx-ad-server-alternatives/>. Verizon announced in March 2019 that it would shutter its Oath ad server in 2020. *See* AdExchanger, “Verizon Media Shuts Down Its Ad Server; Legacy Brands Stave Off the DTCs,” *AdExchanger*, March 6, 2019, <https://www.adexchanger.com/ad-exchange-news/wednesday-03062019/>.

Appendix H. Data appendix

H.1. Data

- (1) Throughout my report, I refer to the datasets I rely on using alternative labels (e.g., “Google AdX data (DOJ RFP 53)”) instead of the Bates numbers. Below, I provide a mapping of those alternative labels to the Bates numbers of the corresponding datasets.

Figure 136. Data name mapping

Data source	Bates number	Alternative dataset label	Notes
Google	GOOG-AT-DOJ-DATA-000066799 to GOOG-AT-DOJ-DATA-000245943	DRX Internal Stats data (DOJ RFP 57)	
Google	GOOG-AT-EDVA-DATA-000226341 to GOOG-AT-EDVA-DATA-000226504	Google AdX data (DOJ RFP 53)	Included in exchange panel data. ¹²⁷⁴
Google	GOOG-AT-EDVA-DATA-000000012	Google AdSense data (DOJ RFP 52)	
Google	GOOG-AT-MDL-DATA-000482532 to GOOG-AT-MDL-DATA-000486515	Google AdSense Backfill data (DOJ RFP 7)	Included in exchange panel data
Google	GOOG-AT-EDVA-DATA-000000174	Google Ads data (DOJ RFP 54)	Included in bidding tools panel data
Google	GOOG-AT-MDL-DATA-000486626 to GOOG-AT-MDL-DATA-000488277	Google Ads data (DOJ RFP 7)	Included in bidding tools panel data
Google	GOOG-AT-MDL-DATA-000488278 to GOOG-AT-MDL-DATA-000508815	Google DV360 data (DOJ RFP 7)	Included in bidding tools panel data
Google	GOOG-AT-MDL-DATA-000558890 to GOOG-AT-MDL-DATA-000559276	Google XP data (DOJ RFP 7)	
Google	GOOG-AT-MDL-DATA-000559277 to GOOG-AT-MDL-DATA-000561030	Google XPP-D data (DOJ RFP 7)	
Google	GOOG-AT-MDL-DATA-000561031 to GOOG-AT-MDL-DATA-000561262	Google XPP-M data (DOJ RFP 7)	
Google	GOOG-AT-EDVA-DATA-000012607 to GOOG-AT-EDVA-DATA-000072606	Google Ads log-level data	
Google	GOOG-AT-EDVA-DATA-000147606 to GOOG-AT-EDVA-DATA-000226014	GAM log-level data	GAM log-level data excludes the set of queries flagged by Google as erroneous ¹²⁷⁵
Third-party exchange	RUBICON-00004480_US; RUBICON-00001154; MAGNITE-AGG-LIT-00000004.003; MAGNITE-AGG-LIT-00000004.004	Magnite exchange data	Included in exchange panel data

¹²⁷⁴ This is a corrected version of GOOG-AT-EDVA-DATA-000000013 to GOOG-AT-EDVA-DATA-000000173 (2023.12.08 AdX data production\2023.12.08 Letter from D. Pearl to M. Freeman).

¹²⁷⁵ The list of erroneous queries was produced as GOOG-AT-EDVA-DATA-000226021 to GOOG-AT-EDVA-DATA000226339 (2023.11.20 Letter from D. Pearl to M. Freeman).

Third-party exchange	IX_00000001; index_US_detail_G	Index Exchange exchange data	Included in exchange panel data
Third-party exchange	YAH_GG_LIT_005629_BRDX Data Pull - 2018 – 2023; YAH_GG_LIT_005630_DSP+ Data Pull - 2018 to YAH_GG_LIT_005635_DSP+ Data Pull - 2023	Verizon exchange data	Included in exchange panel data
Third-party exchange	PMDATA0001	PubMatic exchange data	Included in exchange panel data
Third-party ad network	CRITEO_GOOGLELIT_0000000761; CRITEO_GOOGLELIT_0000015578	Criteo ad network data	Included in bidding tools panel data
Third-party ad network	Exhibit 8-07-R1	FAN ad network data	Included in bidding tools panel data
Public	GOOG-AT-DOJ-DATA-000066787	Worldwide digital ad spending data (eMarketer)	
Public	GOOG-AT-DOJ-DATA-000066784	US programmatic digital display ad spending data (eMarketer)	
Public	GOOG-AT-DOJ-DATA-000247048	US digital ad spending by format data (eMarketer)	

H.1.a. Publisher ad server panel

- (2) I create a publisher ad server panel from data produced by Google and third-party publisher ad servers.

- Google¹²⁷⁶
- Equativ¹²⁷⁷
- Xandr¹²⁷⁸
- Kevel¹²⁷⁹

¹²⁷⁶ DRX Internal Stats (DOJ RFP 57). Viewed impressions in DRX Internal Stats are missing prior to March 2018, and March 2018 appears to only contain a partial month of data. From April 2018 through March 2023 (the end of the DRX data) the viewed impressions field is always at least 99.5% of the viewed queries field. However, the viewed queries field extends back to the start of the data. Therefore, prior to April 2018, I use viewed queries as a substitute for viewed impressions in analyses that rely on impressions from DRX Internal Stats. Further, since the viewed impressions field is always greater than the viewed queries field (in months where DRX Internal Stats contains complete impression data), it is conservative to use viewed queries when reporting DFP impression counts.

¹²⁷⁷ EQUATIV-000000436; EQUATIV-000000465.

¹²⁷⁸ MSFT-LIT-0000073226.

¹²⁷⁹ KVL00000001; KVL00000002; KVL00000003; KVL00000004; KVL00000006; KVL00000008; KVL00000010; KVL00000012; KVL00000014; KVL00000016; KVL00000018; KVL00000020; KVL00000022; KVL00000024; KVL00000026; KVL00000028; KVL00000029; KVL00000030; KVL00000031; KVL00000033; KVL00000035; KVL00000037; KVL00000039; KVL00000040; KVL00000041; KVL00000042; KVL00000043; KVL00000044; KVL00000045; KVL00000046; KVL00000047; KVL00000048; KVL00000049; KVL00000050; KVL00000051; KVL00000052; KVL00000053; KVL00000054; KVL00000055; KVL00000056; KVL00000057; KVL00000058; KVL00000059; KVL00000060; KVL00000061; KVL00000062; KVL00000063; KVL00000064; KVL00000065; KVL00000066; KVL00000067; KVL00000068; KVL00000069; KVL00000070; KVL00000071; KVL00000072;